STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

ILLINOIS INDEPENDENT TELEPHONE ASSOCIATION	)
	)
Petition for initiation of an investigation of the necessity of and the establishment of a Universal Service Support Fund in accordance with Section 13-301(d) of the Public Utilities Act	)
	)
ILLINOIS COMMERCE COMMISSION ON ITS OWN MOTION	)
	)
Investigation into the necessity of and, if appropriate, the establishment of a universal support fund pursuant to Section 13-301(d) of the Public Utilities Act.	)

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AT&T EXHIBIT NO. 4.0

DATE 6/19/01 REPORTER Carl

00-0335

TESTIMONY OF

RICHARD N. CLARKE

ON BEHALF OF

AT&T COMMUNICATIONS OF ILLINOIS, INC.

AT&T Exhibit 4.0

May 11, 2001

Q. Please state your name and business address.

A. My name is Richard N. Clarke. My business address is 295 North Maple Avenue, Basking Ridge, NJ 07920.

Q. By whom are you employed and in what capacity?

A. I am employed by AT&T as a Division Manager in its Law & Government Affairs organization. I am responsible for AT&T's policies with respect to the economic costing and pricing of local interconnection, unbundled network elements and other wholesale local exchange services. I have directed AT&T's involvement in the development of the Hatfield/HAI model of local network costs and I am familiar with other local network cost models such as the BCPM and the Federal Communications Commission's ("FCC's") Synthesis model.

Q. Describe your education and professional background.

A. I have a Bachelor's degree in mathematics and economics from the University of Michigan and a Master's degree and a Ph.D. in economics from Harvard University. Prior to joining AT&T with Bell Laboratories in 1986, I was an Assistant Professor of Economics at the University of Wisconsin-Madison, and worked as an Economist in the Antitrust Division of the U.S. Department of Justice.

Q. Have you previously filed testimony before the Illinois Commerce Commission ("ICC") or (the "Commission")?

A. No. However, I actively participated in the Staff-chaired workshops held in association with the initial proceedings in these dockets. I have also been an active participant in the FCC's dockets on Local Competition (CC Docket No. 96-98), Universal Service (CC Docket No. 96-45) and forward-looking cost modeling for universal service (CC Docket No. 97-160). In each of these proceedings, I have provided the FCC with extensive written and oral submissions.

Q. Have you testified before other state commissions?

A. Yes. I have testified before numerous state commissions. These have included the Public Utilities Commission of Texas in Docket No. 7789 (Rulemaking to Determine a Method and Framework for the Separation of Costs); the Michigan Public Services Commission in Case No. U-10860 (Generic Interconnection Investigation), the Wisconsin Public Service Commission in Docket 05-TI-138 (Investigation of the Appropriate Standards to Promote Effective Competition in the Local Exchange Market in Wisconsin); the Public Utilities Commission of Minnesota in Docket Nos. P-99/M-97-909 (Possible Election of Minnesota to Conduct Its Own Forward-Looking Economic Cost Study to Determine the Appropriate Level of Universal Service Support); among others.

Q. What is the purpose of the your testimony?

A. The purpose of my testimony is to respond to the direct testimony of Mr. Robert Schoonmaker regarding his recommended choice of an older release of the HAI

model (version 5.0a) for developing the economic costs of the small local exchange carriers ("LECs") that comprise the Illinois Independent Telephone Association ("IITA") – rather than the HAI most recent versions 5.1 or 5.2. I will also respond to the modifications Mr. Schoonmaker proposes to inputs for the HAI Model version 5.0a. In this regard, I provide alternative modeling structures and input modifications that I believe should more accurately estimate the forward-looking economic costs that are representative of the IITA LECs.

Q. Mr. Schoonmaker recommends the Commission use the HAI 5.0a cost results for the group of IITA companies as a whole under the proxy provisions of the statute in making its determination whether the statutory requirements are being met. Do you agree?

A. Yes, such a proxy modeling approach is reasonable. However, Mr. Schoonmaker apparently makes this recommendation only in the event a company would not qualify for funding based on its individual cost study. I disagree with this "pick and choose" use of the proxy methodology. Mr. Schoonmaker discusses at great length his concerns as to the validity of costs resulting from use of a proxy model. He specifically states, "While the studies I am presenting are calculated on an individual company basis, they rely on proxy input values that are consistently applied to all companies though they may not specifically reflect the forward-looking costs of each individual company." (Direct Testimony, p. 13) This is an apt observation with respect to any modeling exercise. Even the most accurate proxy models will underestimate the costs of some companies while they overestimate the costs of others. It is inappropriate to adopt proxy model cost

results only for the subset of companies that believe their costs are overestimated by the model, and to eschew these proxy model results for the companies that believe their costs are underestimated by the model. Such a "heads I win, tails you lose" process will only ensure an aggregate result that overestimates costs. Therefore, I recommend the average cost results for the collection of all IITA companies be used as the proxy for the costs of the individual companies. Ms. Hegstrom discusses in her direct testimony the method of calculation that should be employed for companies seeking fund distributions.

Q. Mr. Schoonmaker proposes to use version 5.0a of the HAI model for his cost analyses. Do you have reservations with the use of this version?

A. While I do not oppose the use of the HAI 5.0a model, I do have concerns about how Mr. Schoonmaker attempts to 'modify' this version, especially when newer versions currently available may provide a superior modeling treatment of many of its calculated costs.

Version 5.0a of the HAI model was introduced in February 1998. Over the course of the last three years, numerous improvements have been made to the network engineering algorithms and input values used in the model. As a result, the more current releases of the HAI model are versions 5.1 and 5.2. Many of the improvements that have been incorporated into these releases are the result of collaborations with the FCC – which has itself adopted improved versions of the HAI 5.0a model's Switching and Interoffice Module and Expense Module for use

in its Synthesis model. Among the advances now incorporated into the HAI 5.1 and 5.2 models that are of particular relevance to this proceeding are improved calculation of loop plant distances and efficiency improvements in the engineering of switching and transport networks for small carriers with small wire centers. Thus, I believe it would be more appropriate to use one of these newer HAI versions to model the costs of the IITA LECs than to use the older 5.0a version. Nevertheless, many of the improvements in the HAI 5.1 and 5.2 models result from the use of more appropriate input values – values that may also be inserted into the HAI 5.0a model to achieve similarly superior results.

Q. Mr. Schoonmaker describes several modifications to the default inputs used in the HAI 5.0a model. Do you have concerns with these modifications?

A. Yes, I do. Modifications to the default inputs of the HAI model are appropriate only when they are supported by evidence that these modified input values more accurately represent the forward-looking economic costs of the input in question. Simply to support a modification with the observation that the modified value causes the modeled results to track more closely the historic embedded costs experienced by the relevant IITA LECs does not meet this economic standard.

Q. Please explain why you disagree with several of the particular modifications Mr. Schoonmaker has proposed to the default inputs for the HAI 5.0a model.

A. I will describe my disagreements with four general areas of Mr. Schoonmaker's modifications.

Outside Plant

Mr. Schoonmaker proposes both that nearly all outside plant should be buried and that none of these buried structures should be shared with any other use (e.g., electric or cable television lines). Indeed, Mr. Schoonmaker also proposes that no rural or urban underground conduit structures be shared, nor should any aerial pole structures in rural areas be shared. He states that he believes that these are the currently prevailing practices for rural Illinois LECs. While this observation may be correct, and, indeed, may even be expected in a monopoly rate-of-return-on-rate base regulatory environment, such plant assumptions are not forward-looking. Forward-looking economic costs are those of a carrier that seeks to minimize the amount of capital it must deploy to serve a given market at a given standard of quality. Because, as Mr. Schoonmaker observes, there is other utility plant (e.g., electric and cable) in these rural serving areas, and this plant frequently is supported by pole structures, trenches or conduits that accommodate easily shared use, forward-looking economic costs should incorporate substantial use of shared structures. Furthermore, even when buried structures are used in preference to aerial or underground structures, they may be shared as well.

Switching Costs

Development of switching costs is improved in the newer versions of the HAI Switching and Interoffice module that have been incorporated into the FCC Synthesis model and the HAI 5.1 and 5.2 models. These improvements are in three areas. First, the newer versions' switch cost curves reflect directly the

division of costs between getting started investments (e.g., the processor and its operating software) versus the additional investments necessary to add lines to the switch. The former costs are flat amounts for each switch, while the latter costs scale with the number of lines the switch serves. This is in contrast to the HAI 5.0a model which develops all switching costs on a per line basis. Second, the newer versions engineer host-remote switching systems as their default assumption. This provides substantial improvements in the modeling of forward-looking switching costs for small switches which should economically be remotes. Finally, these new switching systems are costed using the more comprehensive data on such systems collected for use in the FCC's Synthesis model. The data underlying the Synthesis model's switching costs come from two sources. Data on large switches come from Part 32 Continuing Property Records of the large reporting LECs, and data on smaller switches come from Rural Utilities Service records concerning the cost of switches procured for small rural LECs who are borrowers from the Rural Utilities Service.

But in any event, switching costs modeled pursuant to the FCC Synthesis model's algorithms and data compare closely with those modeled by the HAI 5.0a model using its default input values. Furthermore, it is not surprising that the modeled forward-looking switching costs are substantially less than the embedded costs that Mr. Schoonmaker's input modifications are designed to track. There are several reasons. The first is that vendor switch prices have steadily been declining and vendors have also been developing host-remote switching systems

and host-digital loop carrier systems that are more cost-efficient than older technologies employing mostly standalone switches. The second is that embedded switching accounts contain investments for equipment beyond just end-office switches (e.g., tandem or packet switches). Thus, targeting modeled end office switching costs to the level of this embedded cost account is sure to result in an overestimate of the forward-looking cost of end office switching. Further, embedded accounts may contain dollars associated with equipment that has since been superceded by replacement equipment. For these reasons, the FCC in determining its modeled switching cost scrubbed these data to ensure that they picked up only the costs of recently installed end office switches – and it was an unsurprising result that the FCC calculated forward-looking switching investments to be substantially less than embedded investments in the switching account.

Cost of Capital

The 15% cost of equity appears to be very high. This figure exceeds substantially the cost of equity for large public telephone companies. In contrast, current analyses of the cost of equity for the large telephone companies suggest that the figure should be in the 11% to 12% range. When coupled with costs of debt that are in the 7% to 8% range, this yields a weighted average cost of capital of about 9.5%. This comports very favorably with the 9.52% figure that I am advised the Commission found appropriate in Docket Nos. 96-0486/96-0569 for Ameritech-Illinois. Indeed, because the rural areas served by small carriers in Illinois are

more immune to competitive penetration than are the metropolitan areas served by the larger carriers, it is reasonable to expect that the cost of small carrier capital should be less than the cost of capital for large carriers. Similarly, because of the stable financial situation for small carriers, they reasonably should have a more levered capital structure than that offered by the 40% debt ratio suggested by Mr. Schoonmaker.

In addition to the above cost of capital issues, the depreciation lives input into the HAI model should be the lives that have been approved by the Commission for use in Illinois, which are within the admissible ranges determined by the FCC, and the cost reducing effect of deferred taxes should be recognized.

Expenses

Mr. Schoonmaker makes several upwards adjustments to the default expense levels in the HAI 5.0a model. These proposed figures for network operations expense, billing/bill inquiry expense, carrier-to-carrier customer service expense and central office switching and transmission expense do not appear to have support other than an observation that they more closely reflect embedded expense levels experienced by small LECs in Illinois. In contrast, the default expense figures in the HAI 5.0a model are supported by forward-looking evidence, and their validity has generally been affirmed by the collection of expense factors that has been adopted by the FCC for its Synthesis model. The FCC developed these expense factors using its own statistical regression analysis,

and these factors yield expense levels that match very closely those generated by the HAI 5.0a default factors.

Q. What modeling strategy would you suggest employing to develop most accurately the costs of the IITA LECs?

A. Perhaps the best way to improve on the accuracy of this cost modeling would be to employ a newer version of the HAI Model such as 5.1 or 5.2. Use of these newer versions would allow automatically the incorporation of the various advances in the development of switching costs, interoffice transport costs and expenses that have been outlined, above. In addition to these advances, adoption of a newer version also provides improvements in the calculations of loop plant distances and accounts for the cost savings enjoyed by LECs due to the tax deferrals offered by accelerated IRS depreciation schedules.

However, while use a newer version of the HAI model would be the best way to secure more accurate cost results, it would require the acquisition of additional customer location and plant distance data from TNS, the vendor of such data to both the HAI and FCC Synthesis models. Furthermore, these newer versions of the HAI model may be less familiar to the participants in this case. Because much of the advantages offered by these newer versions may be obtained by making a relatively few input changes to the HAI 5.0a model, this is what I propose.

Q. Please list the modifications you are recommending.

A. The modifications that I am recommending are those that I proposed in a workshop held in association with the initial proceedings in these dockets last year. They are outlined in the attached document that AT&T distributed at that workshop (AT&T Ex. 4.1). These changes included:

a) Adjusting the distribution plant cable fills in all density zones to a flat value of 75%;

b) Adjusting the copper feeder plant cable fills in all density zones to a flat value of 80%; and

c) Revising values for fiber cable investments in feeder and interoffice use as per HAI 5.1.

d) Modifying the economic plant lives to match the values prescribed by the Commission for use in Ameritech-Illinois LRSIC studies.

Q. Can you briefly explain the purpose of each of these modifications?

A. The default inputs for HAI 5.0a use distribution fills that vary between 50% and 75%, depending on the density zone. These default values were designed to represent measured fill at the central office, rather than be general cable sizing factors. Correcting for this mismatch, and reflecting the fact that the default values were intended to represent fills required for networks that provide a broad array of telecommunications offerings beyond just universal service, provides the basis for this increase. This modification results in fills that match the default fills in HAI 5.1.

Regarding the second modification, the default inputs for HAI 5.0a use copper feeder fills that vary between 65% and 80%, depending on the density zone. These default values were designed to represent measured fill at the central office, rather than be general cable sizing factors; and more the fill levels required in a network that provides a broad array of telecommunications offerings in addition to universal service. Changing these fill levels to 80% matches the default fills in HAI 5.1.

Next, because the values for fiber cable investments in HAI 5.0a are outdated and do not reflect currently available fiber prices – which have dropped significantly in recent years in response to massive increases in fiber use. Thus, newer, lower fiber investment costs should be reflected in the cost studies presented in these proceedings in order for these studies to provide an accurate picture of current economic costs.

Finally, as I stated above, all plant depreciation lives should be set to the values selected by the Commission for use by Ameritech-Illinois in its LRSIC studies.

Q. Are there any further modifications that AT&T is recommending at this time?

A. Yes. The line counts and minute traffic volumes used by the HAI model should be updated to current levels. Generally, increases in lines and traffic cause unit cost results to be less. Mr. Schoonmaker's testimony and recent IITA responses

to data requests appear to suggest that these updates may have been at least partially performed. However, the recency of these submissions does not allow me yet to conclude that all necessary adjustments have been made.

Q. Based on your proposed modifications to the HAI 5.0a model, what cost levels does AT&T calculate for the IITA LECs?

A. Because I only recently have been provided with updated line and traffic data for the IITA companies, I cannot answer this question in this testimony. I am currently in the process of performing calculations based on the input modifications I have proposed, along with these updated line and traffic data. I will provide the results of these calculations in my May 31 rebuttal testimony. These calculations will include a display of the average forward-looking costs of switched access services, which will be utilized later in the analysis discussed by Ms. Hegstrom. In addition to these modified HAI 5.0a cost results, I also expect to provide example average costs results from updated versions of the HAI Model.

Q. Does this conclude your testimony?

A. Yes, it does.

AT&T's Recommended Modifications to the HAI 5.0a Model for Use in Establishing an Illinois Rural Carrier USF

AT&T's interest in this proceeding is to establish quickly an improved methodology for ensuring appropriate universal service support for customers served by rural local exchange carriers in Illinois. Although the most efficient way to achieve this goal is through direct customer support programs such as Lifeline and Linkup, in the interest of securing rapid improvements to current mechanisms AT&T generally supports use of the HAI 5.0a model of forward-looking economic costs to compute carrier subsidies.[1] Thus, AT&T will limit its proposals to a few simple modifications to the inputs of the HAI 5.0a Model that will allow this model to calculate rural carrier costs in Illinois more accurately than would be calculated by the HAI 5.0a with its default input values.

The proposed input modifications are as follows.

1. Adjust distribution plant cable fills in all density zones to a flat value of 75%.

   The default inputs for HAI 5.0a use distribution fills that vary between 50% and 75%, depending on the density zone. These default values were designed to represent more the measured fill at the central office rather than be cable sizing factors; and more the fill required for a network that provides a broad array of telecommunications offerings in addition to universal service. Changing these fills to 75% matches the default fills in HAI 5.1.

2. Adjust copper feeder plant cable fills in all density zones to a flat value of 80%.

   The default inputs for HAI 5.0a use copper feeder fills that vary between 65% and 80%, depending on the density zone. These default values were designed to represent more the measured fill at the central office rather than be cable sizing factors; and more the fill required for a network that provides a broad array of telecommunications offerings in addition to universal service. Changing these fills to 80% matches the default fills in HAI 5.1.

3. Revise values for fiber cable investments in feeder and interoffice use as per HAI 5.1.

   The values for fiber cable investments in HAI 5.0a are dated and do not reflect currently available fiber prices – which have dropped significantly in recent years in response to massive increases in fiber use.

[1] If it were useful to conduct a broader proceeding, AT&T likely would support the use of a more advanced variant of the HAI Model such as version 5.1. This newer version incorporates improvements in the calculations of loop plant distances; and it comports more closely with the advances in switch and interoffice plant engineering and in capital cost development that are included in the Synthesis Model of universal service cost adopted by the Federal Communications Commission for nonrural carriers.

4. Revise cost of money to 9.52%, the value set for Ameritech Illinois in Docket Nos. 96-0486/96-0569 (Consol.) (February 17, 1998 Second Interim Order).

5. Revise economic lives to those prescribed by the ICC for use in Ameritech Illinois LRSIC studies.

The attached "Scenario Inputs" sheet from an HAI 5.0a expense module details the specific fill factor, fiber cable investment and cost of capital input value changes being recommended. We will provide shortly the several additional entry details necessary to implement the changes to the depreciation lives recommended, above.

Extract from "Scenario Inputs" sheet of HAI 5.0a expense module displaying AT&T's proposed input value modifications

NOTE: This sheet diplays all user adjustable inputs which vary from HM 5.0a default settings

Workfile Name:	**D:\HM50\WORKFILES\HMWKIL3409843.XLS**
Distribution Module Name:	**D:\HM50\MODULES\R50a_distribution.xls**
Feeder Module Name:	**D:\HM50\MODULES\R50a_feeder.xls**
Switching Module Name:	**D:\HM50\MODULES\R50a_switching_io.xls**
Expense Module Name:	**D:\HM50\MODULES\R50a_expense_density.xls**

Module/Table	Scenario Input	Scenario Value	Default Value
Distribution	Distribution Cable Fill - 0	0.750	0.500
Distribution	Distribution Cable Fill - 5	0.750	0.550
Distribution	Distribution Cable Fill - 100	0.750	0.550
Distribution	Distribution Cable Fill - 200	0.750	0.600
Distribution	Distribution Cable Fill - 650	0.750	0.650
Distribution	Distribution Cable Fill - 850	0.750	0.700
Feeder	Copper Feeder Fill - 0	0.800	0.650
Feeder	Copper Feeder Fill - 5	0.800	0.750
Feeder	Fiber Feeder Investment per foot - 216	8.130	13.100
Feeder	Fiber Feeder Investment per foot - 144	5.750	9.500
Feeder	Fiber Feeder Investment per foot - 96	4.170	7.100
Feeder	Fiber Feeder Investment per foot - 72	3.380	5.900
Feeder	Fiber Feeder Investment per foot - 60	2.980	5.300
Feeder	Fiber Feeder Investment per foot - 48	2.580	4.700
Feeder	Fiber Feeder Investment per foot - 36	2.190	4.100
Feeder	Fiber Feeder Investment per foot - 24	1.790	3.500
Feeder	Fiber Feeder Investment per foot - 18	1.590	3.200
Feeder	Fiber Feeder Investment per foot - 12	1.400	2.900
Feeder	Fiber investment/strand - foot	0.050	0.100
Switching	Fiber Investment, fiber cable	1.790	3.500
Expense	Cost of Debt	0.068	0.077
Expense	Debt Fraction	0.588	0.450
Expense	Cost of Equity	0.134	0.119

The distribution cable fills are adjusted from the "Distribution Inputs" / "Fill and Pole Spacing" pull-down menu.
The copper feeder cable fills are adjusted from the "Feeder Inputs" / "Cable Sizing Factors" pull-down menu.
The fiber feeder investments are adjusted from the "Feeder Inputs" / "Cable Costs" pull-down menu.
The fiber interoffice investments are adjusted from the "Switching Inputs" / "Interoffice Investment" pull-down menu.
The cost of capital parameters are adjusted from the "Expense Inputs" / "Cost of Capital" pull-down menu.